

Wuppertal Institute
for Climate, Environment
and Energy

Access to electricity – Technological options for community-based solutions:

Case Studies from Perú

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Research Group I: Future Energy
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WISIONS

objective and activities 2004 - 2010

WISIONS objective is to to **combine spreading knowledge** of existing successful good-practice projects with progressing the **realisation of new project ideas**.
Focus on **grass-roots** initiatives in Developing Countries

Activities

PREP - Promotion of Resource Efficiency Projects

- Brochures on specific issues to showcase good-practices on successful projects
- Decision process based on SD criteria; Closed 2008

SEPS - Sustainable Energy Project Support

- Annual call for applications with a budget of 0.3 - 0.5 Mio. €
- The applications have to fulfil SD criteria and need an implementation strategy
- 6 rounds so far; support of 54 projects in more than 25 countries

Technology Radar

- Information platform on technological options for meeting human basic (energy related) needs.
- Need oriented, technology neutral and comprehensive

Regional Partnerships

- Build up longer cooperation with one reliable partner in target region to promote one specific technology (currently building up of partnerships)

Information platform - www.wisions.net

launched May 2010



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☐ Technology Radar

SEPS
ENERGY PROJECTS

TECHNOLOGY
RADAR

PREP
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WISONS OF SUSTAINABILITY

The WISONS initiative has been actively promoting the introduction of sustainable energy solutions and resource efficiency since 2004. During these years, WISONS has not only become well established, it has also learned a lot about the barriers that still hinder the widespread dissemination of sustainable energy solutions and successful implementation models, especially in developing countries and emerging economies.

Our aim with the newly developed [Technology Radar](#) is to give a comprehensive overview of the existing renewable energy technologies and their possible future contribution to meeting basic energy needs.

TECHNOLOGY RADAR



Identify those technologies that can be used to meet our energy needs

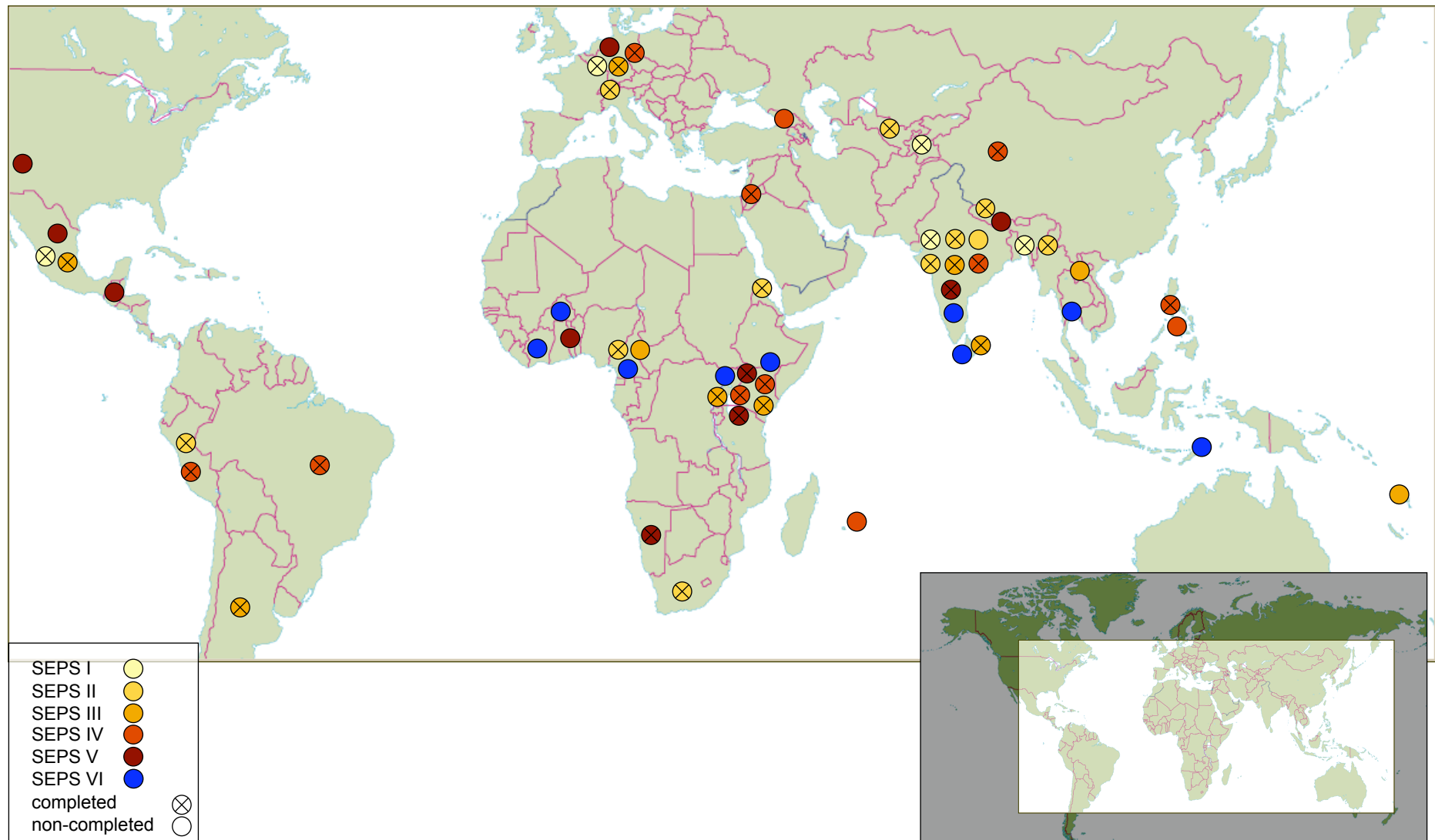
SEPS PROJECT MAP



Short descriptions of all the projects supported by SEPS

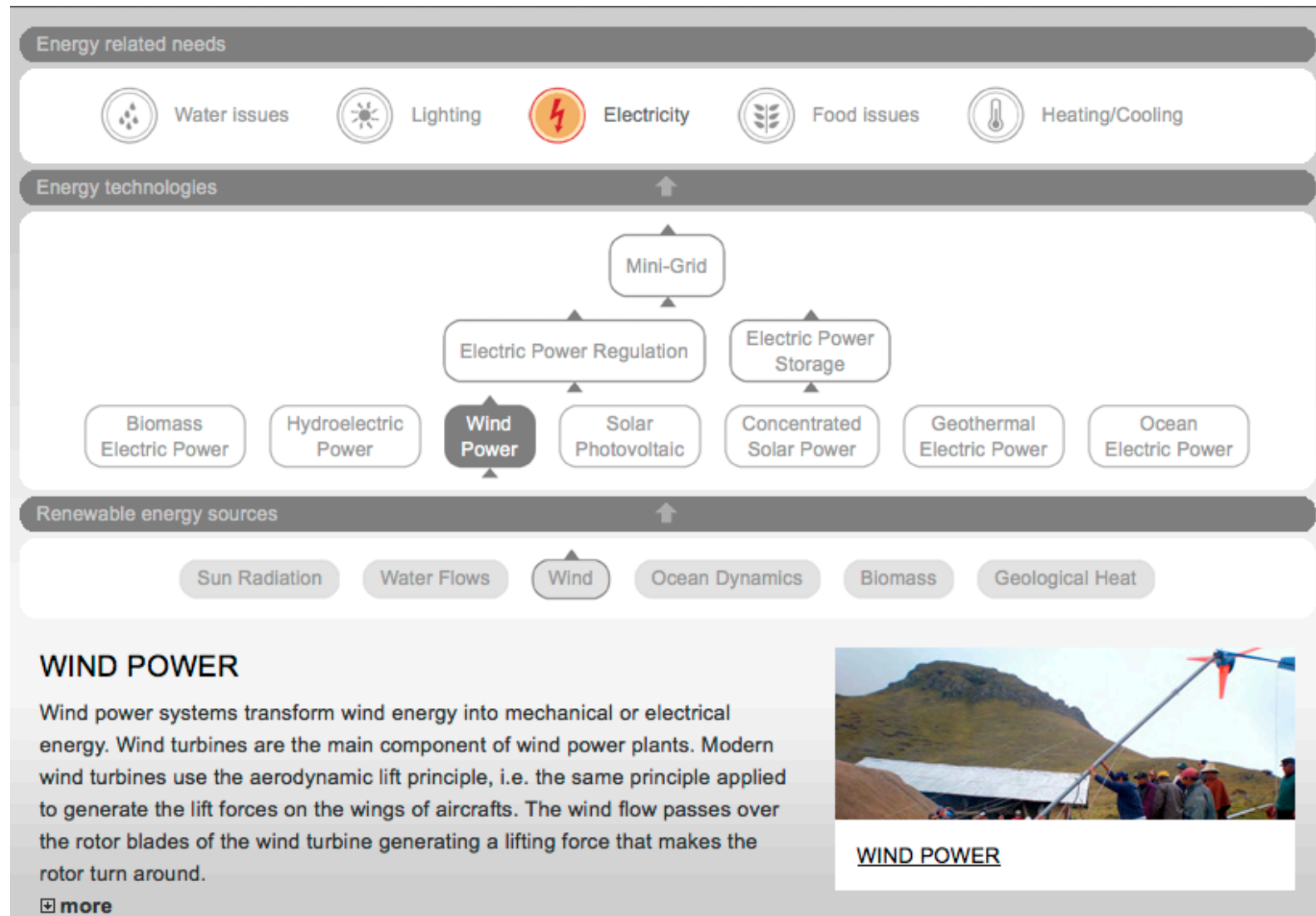
SEPS Project Map

Sustainable Energy Project Support



Technology radar

Online Tool – www.wisions.net



Access to Electricity

The role of local socio-economic structures

Selecting **appropriate technological solutions** is a necessary (but not sufficient) condition for ensuring sustainability of project activities.

An appropriate **socio-economic framework** is as necessary as appropriate technologies: **Network** of persons and/or organisations which provide the products and services related with the supply of energy services (devices, technical support, installation, financing, inputs, etc)

Key components for implementation strategies of community-based approaches:

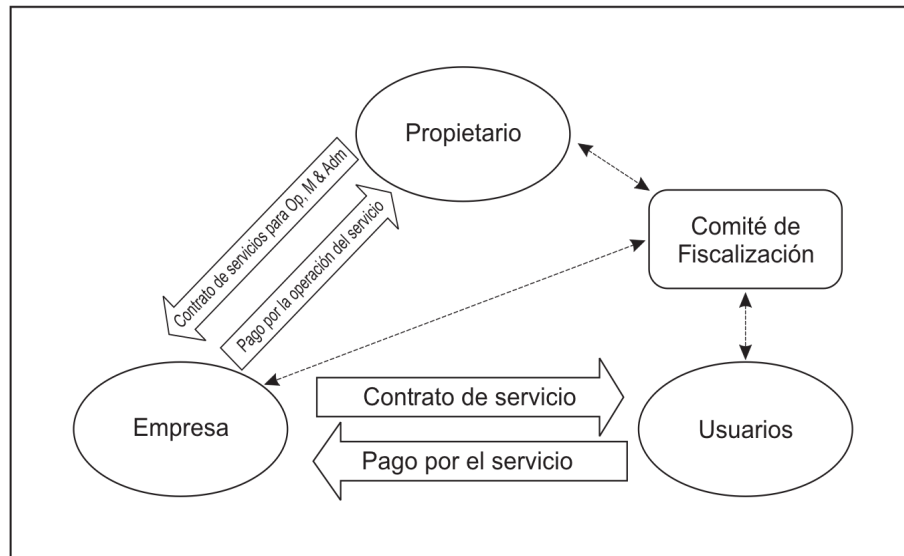
1. Community participation already by the conception of the measures.
2. Identifying/setting local structures for implementation.
3. Setting structures for sustainability after implementation period.
4. Building local capacities for sustainable provision of services.

Access to Electricity

Examples of community-based approaches in Perú

Common Facts

- Partners: Soluciones Prácticas Perú, Greenempowerment
- Location: Different communities in the Department of Cajamarca (Northern Peru)
- The management model bases on the interaction of 4 actors.
- Interactions are regulated by contracts and written rules.
- Micro-Entrepreneur responsible for O&M and tariff collection is elected by the community from a pool of local technicians trained during the implementation of the project.
- Tariff scheme: montly “flat rate” (ca. 3 USD by 2009)



Schematic view of the management model applied in community based projects in Perú. (Source: ITDG, 2007, *Organización de servicios eléctricos en poblaciones rurales aisladas*)

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Examples of community-based approaches

- Peru, Cajamarca, community “Balcones”
- Domestic needs (31 Households) + communal needs (2 schools + 1 healthpost)
- 1 Mini-Grid
- 1 pelton 9 kW, Generator single phase asynch.

Some particularities

- The system has been operating since mid of 2007 without major problems.
- The community will be connected to the national grid in the next few years. What to do with the Hydropower System?



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Examples of community-based approaches

- Peru, Cajamarca, 8 communities from San Ignacio Province
- Communal needs (8 schools, 5 community centers, 2 healthpost)
- 15 PV Stand alone systems
- PV modules (60-120 Wp), Regulator, Batteries 90Ah, CFLs, (inverter, TV, DVDs)

Some particularities

- Many difficulties with the management of the system: e.g. Low collection of fees, management “skills” and handbooks lost.
- Some systems installed in schools were assumed by the local Parents’ Associations.

Lessons learned

- ! Take special care of assessing RELEVANT energy needs.
- ! Give transparent information: “What can and what can NOT be expected from the solution”.



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Examples of community-based approaches

- Peru, Cajamarca, community “El Alumbre”
- Domestic needs (33 Households) + communal needs (school + healthpost)
- 35 small wind “stand alone” systems:
- Wind turbines (33x100W; 2x500W), controller, Inverter, Battery

Some particularities

- Turbines were produced in Perú
- The stand alone systems have been working without major problems since beginning of 2009.

Lesson learned

- Mini grids connecting small housing complexes should be preferred for replications: i.a. lower investment costs; regulation of power supply and demand.



Access to Electricity

Examples of community-based approaches in Perú

Project conception

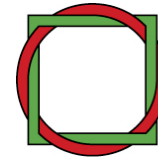
- Address energy services that are relevant for interested/involved actors

Project implementation

- Participation of local organisations (e.g. committees) can facilitate realisation: e.g. Communication with local population, coordination of local contribution (e.g. work, materials, storage, etc)
- Support of local governmental entities can be crucial: e.g. financial and institutional contribution for realisation of activities and setting structures for sustainability after project realisation (e.g. setting capacities for technical and managerial assistance,

Management model

- The model of “4 actors” is suitable to guarantee sustainable operation and maintenance of systems. Based on the payment of the end users for provided energy services.
- In case of communal services, the management of the system by a “long lasting” interested local organisation has brought better results regarding sustainability.



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Many thanks for your attention



For further information please
visit our websites:

www.wisions.net

www.wupperinst.org